

Framework for Estimating National Costs TIMSS 2027

June 2024

This framework for estimating national costs has been developed to describe the types of tasks, infrastructure and staff needed within countries to run the Trends in International Mathematics and Science Study (TIMSS) 2027. The total national costs for running TIMSS will depend on individual country circumstances and cost structures.

TIMSS 2027 is a digital format assessment with a field test scheduled for March–April 2026 and the main data collection scheduled for March–June 2027 (Northern Hemisphere) and September–December 2027 (Southern Hemisphere).

The major budget requirements needed to implement the TIMSS assessment in each country are described below. For additional information on the required roles and expertise of the National Research Coordinator (NRC), as well as the necessary tasks to take place in each participating country, please refer to the separate document: National Roles and Tasks for IEA TIMSS 2027.

National Study Center

A TIMSS National Study Center (NSC) is established in each participating education system. The TIMSS NSC is organized and led by the NRC and usually is staffed with one or two full-time employees plus some part-time staff to assist them at particular times during the project life cycle (e.g., content and curriculum expert, sampling coordinator, data manager, statistician, and office staff).

Additional temporary employees will also be necessary. These short-term tasks and positions include:

- coordinating the sampling process;
- translating and reviewing the assessment instruments and manuals;
- IT support for testing and preparing school or external computers for TIMSS compatibility and providing support during the administration window;
- preparing the assessment instruments (install/copy software, label materials, and—if any—print paper materials, etc.) and providing these to the participating schools;
- school coordinators/test administrators;
- national quality control monitor(s);
- scorers for the constructed-response items;
- data entry and/or scanning personnel for any paper-pencil administered Home Questionnaire, if applicable;
- reviewing draft national and international data and summary statistics;
- encouraging school participation (to ensure participation rate requirements for reporting are met) and clerical assistance.

Please consider that staff who work directly with the International Study Center (ISC) and IEA require a high level of proficiency in written and spoken English.

Equipment

The NSC needs to be equipped with computer infrastructure sufficient to manage work on large-scale assessment. TIMSS 2027 assessment instruments (achievement test and context questionnaires) will be developed, translated, and administered using electronic (computer-based) platforms. The TIMSS assessment will be prepared and administered using the RM Assessment Master. The context questionnaires will be prepared and administered using IEA's *StudyExpert*.

The assessments will be delivered to students via TIMSS Players. The offered delivery methods are online administration and via individual PCs/USBs. Each device should have a power supply (to ensure sufficient charging), must have an external keyboard, and either an external or touchpad mouse is strongly encouraged (touchscreens tend to cause issues due to different device specifications). The minimum device requirements for TIMSS compatibility will be confirmed at a later stage.

For online administration:

Each device needs to be connected to the internet. Google Chrome browser will be the most tested browser for the TIMSS instruments and is strongly suggested to be used regardless of the devices used.

For individual PC/USB administration:

No network or internet connection is required for the assessment administration, as everything is contained on USB sticks. It is crucial to use quality USB sticks. Specifications regarding the minimum OS and storage capacity will be confirmed at a later stage.

Data upload will require internet connection and can be done from a single computer connected to the internet.

If you plan to administer the Home Questionnaire on paper, you will need the latest InDesign layout program available via Adobe Creative Cloud. To administer this questionnaire on paper, participants will need to have an Adobe Creative Cloud account to access the InDesign software.

Systems provided by IEA (within-school sampling software; system for context questionnaire preparation; scoring system; and data management software) are designed to work on PCs.

Communication with the international centers will be via email and materials will be exchanged by uploading/downloading to/from the IEA's and the TIMSS & TIMSS International Study Center's secure servers.

Traveling

Throughout the assessment cycle, there will be nine NRC meetings to attend. Some of the NRC meetings are planned to be in-person and the others are planned to be virtual. Each in-person meeting will be held in a different participating country and will last for approximately one working week (5 days). Additionally, there will be two data management training seminars held by IEA, in Hamburg, Germany, each lasting three to four days. IEA will provide training in the use of IEA software developed especially for the current TIMSS cycle. The data management training seminars should be attended by the data manager and/or the NRC.

Some domestic travel within the country also needs to be budgeted for. This includes training school coordinators/test administrators, monitoring schools during the field test and the main data collection (National Quality Assurance Program), and coordinating the work with any outsourced agency or agencies, etc.

Sampling

There will be approximately 25–40 schools and 1,000–1,200 students participating in the field test (200 responses per item are required—samples will be slightly increased due to possible minor attrition) and a minimum of 150 schools with approximately 4,500 students for the main data collection. In each school there will be at least one class randomly selected from the target grade. All students in this sampled class are selected to participate in the survey. The number of classes to be selected may be increased to meet sample size requirements or countries' oversampling needs and interests.

Depending on the structure of educational/governmental systems within each country, costs may occur during the sampling frame preparation.

Instrument Preparation

For the field test and main data collection, the major undertaking is translating and/or adapting the assessment instruments and manuals into the language(s) of instruction in each country. First, the instruments and manuals will need to be translated/adapted for field testing the newly developed items and then updated for the main data collection.

For the main data collection, countries will be responsible for reviewing the existing trend translations from the TIMSS 2023 cycle. New countries will need to translate/adapt the trend items.

Finally, the NSC is responsible for testing the national player(s). If the individual PCs/USBs method will be used, a USB stick with the TIMSS 2027 Player and Student Questionnaire application needs to be installed for each participating student.

The following information provides estimates on the scope of translating/adapting the assessment instruments and manuals.¹

For the field test, NSCs will need to prepare national versions of:

- 18–20 blocks of new items (approximately 11–16 items in each block, including interactive problem-solving and inquiry (PSI) items; instructions and system text)
- Four context questionnaires (ranging from ~2,000–5,000 words)
- *School Coordinator Manual* (~11,000 words)
- *Test Administrator Manual* (~14,000 words)
- Preparing Computers for TIMSS instructions (~6,000 words)
- *National Quality Control Monitor Manual* (~3,000 words) and Classroom Observation Record (~3,000 words)
- Scoring Guides for Constructed Response Items (~8,000 words)

For the main data collection, NSCs will need to prepare national versions of:

- 28 achievement item blocks
- Four context questionnaires
- *School Coordinator Manual*
- *Test Administrator Manual*
- Preparing Computers for TIMSS instructions
- *National Quality Control Monitor Manual* and Classroom Observation Record
- Scoring Guides for Constructed Response Items (~13,000 words)

¹ Please note that expected word counts are preliminary and based on the 2023-word counts. They are provided for estimation purposes only and are subject to change.

Printing and Labeling

If all/some G4 Home Questionnaires will be administered on paper and/or if you plan to prepare online questionnaire instructions and access information on paper, as well as any manuals to be used in paper format, the NSC will need to plan for printing expenses. In addition, any paper materials, except for the manuals, will need to be labeled for particular respondents.

The numbers of any context questionnaires and manuals for printing will need to be adjusted based on the actual sample size in the country, but the below information is provided for estimation.

For the field test, if you will be administering any context questionnaires via paper, based on a sample size of 25 schools and ~1,200 students, you will need to print at least:

- ~1,200 copies of the Home Questionnaire plus 3 extra copies per class
- At least one *School Coordinator Manual* and *Test Administrator Manual* for each participating school

For the main data collection, if you will be administering any context questionnaires via paper, with the minimum sample size of 150 schools and ~4,500 students, NSCs will need to print:

- ~4,500 copies of the Home Questionnaire plus 3 extra copies per class
- At least one *School Coordinator Manual* and *Test Administrator Manual* for each participating school

Shipping/Mailing Costs

For shipping any hard copy or USB format materials to schools, a safe and efficient shipping method should be selected for the materials to remain secure at all times. Additional mailing might be necessary between the NSC and the schools, e.g., providing any missing or damaged testing materials. **NOTE:** There are two rounds of shipping any hard copy or USB format materials to and from the participating schools—first for the field test and then for the main data collection.

Scoring

Student responses to the constructed-response items will need to be scored in each participating country. In addition to the actual scoring, NSCs will need to budget for training the scorers and supervising the scoring process.

The TIMSS & PIRLS International Study Center will provide international scoring training and scoring guides for the field test and again for the main data collection. Attending the international scoring training is mandatory. Scoring guides may either be used in English or translated.

The TIMSS International Study Center will provide the NSCs with estimates of person days required for scoring activities based on the number of constructed-response items. The estimates provided below are based on the TIMSS 2023 cycle and are subject to change.

For the field test, it is estimated that scoring will require about 12 person days in total.

For the main data collection, it is estimated that the scoring process requires about 48 person days. Approximately 4 to 8 scorers will be needed.

Data Entry

Any paper Home Questionnaire data will need to be manually entered, unless scanning is used, via the IEA's proprietary software. In addition to the actual data entry (punching), the punchers need to be trained. The number of questionnaires to be entered can be estimated based on the sample size.

Data Processing

Data processing is a joint effort between IEA and the NSC. IEA implements a series of standardized quality checks while cleaning and processing the data. The NSC needs to ensure that a national data manager (NDM) is available to review the data and respond to any questions raised during this step. In addition, someone with statistical expertise should be available to review the national and international data scaling and draft reports.

Reporting

Each country needs to plan for producing a national report at the end of the assessment cycle. This includes the costs of preparation and publishing the report, a press conference for its release and/or any other form of the TIMSS results dissemination.